

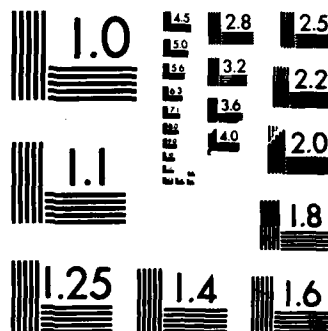
AD-A182 449 INPUT-OUTPUT TO A HYBRID DIGITAL/OPTICAL COMPUTER(U)
FLORIDA UNIV GAINESVILLE ENGINEERING AND INDUSTRIAL
EXPERIMENT STATION R C ANDERSON 01 MAY 87
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This report summarizes the equipment purchased on the grant and the research on which it is being used.			
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SECTION I

INTRODUCTION

The original intended use of this equipment was to expand our computing capabilities by use of a hybrid optical and digital system. This system was to be used to study new image and signal processing techniques as they applied to optical seekers.

Several factors combined to prevent us from achieving the original goal. These were:

1. Air Force shift in interest,
2. Some of the key pieces of equipment were no longer available, and
3. Extremely long acquisition times on some items.

The bright side is that we were able to attack other Air Force problems because of the availability of the equipment. All of the items purchased are now located at a University of Florida laboratory located on Eglin AFB where they are in daily use on Air Force funded projects.

The remainder of the report describes the equipment that was purchased and the Air Force projects to which it has been and is being applied.

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 Chief Technical Information Division

SECTION II
EQUIPMENT PURCHASED

The following items were purchased under the grant.

<u>Newport Research Corporation</u>	
Digital Shutter	660
Optical table and support system	8,365
Optical table cover	3,387
Optical table accessories	2,343
	<u>14,755</u>
 <u>Spectra Physics</u>	
Spatial filter	1,520
Collimator	1,995
Spatial filter lens	925
Temperature stabilized etalon	1,900
	<u>6,340</u>
 <u>Tektronix, Inc.</u>	
Hard copy unit for PDP 11/34	7,285
 <u>Aerotech</u>	
15 mw HeNe laser	3,278
 <u>General Scanning, Inc.</u>	
Optical scanner	567
Scanner electronic control	1,350
	<u>1,917</u>
 <u>Kennedy</u>	
9400 Tape drive 800/1600/6250	10,000
 <u>Emulex</u>	
Magnetic tape coupler	1,500
 <u>Ealing Electro-Optics, Inc.</u>	
Radiometer	2,589
 <u>Spatial Data Systems</u>	
Memory Planes for EyeCom II	6,750
 <u>Apple Computer, Inc.</u>	
Apple IIE computer and disk drive	827

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Crystal Technology

Acousto-optic modulator driver	342
Acousto-optic modulator	540
Acousto-optic deflector driver	675
Acousto-optic deflector	3,420
	4,977

Analogic Corporation

Array processor with dual ID port	31,500
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Hughes Aircraft

Liquid crystal light valve	25,000
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Spectrum Data Systems

Matrix camera	13,990
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National Semiconductor

128 KW memory for PDP 11/34	780
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Oriel Corporation

Miscellaneous optical bench accessories	5,465
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SECTION III

RESEARCH

The original request for equipment was to augment on-going work on Air Force Armament Laboratory Contract #F088635-84-0215. The apparatus purchased under the grant did contribute significantly to its successful completion even though all the goals for hybrid digital/optical computations were not achieved. The results are reported in the Air Force report AFATL TR-86-85 entitled "Practical Considerations for the Application of Generalized Optical Matched Filters". There, topics such as filter efficiency, phase-only filters, and discrimination are treated both experimentally and theoretically.

The emphasis of this laboratory has now been shifted to different areas in response to Air Force interests. One task is to develop new methods in holographic flow visualization in the Eglin ballistics range. The other task is to determine the temperature in the bore of a railgun for SDI applications. These programs would not have been possible without the equipment from this grant. The new work is funded under Air Force Armament Laboratory Contract #F08635-86-K-0156.

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